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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,543	12/17/2003	Torsten Gottschalk-Gaudig	WAS 0611 PUS / Wa 10239-S	8271
22045 7590 03/15/2007 BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			EXAMINER TSOY, ELENA	
			ART UNIT 1762	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/738,543	GOTTSCHALK-GAUDIG ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/04, 5/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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Election/Restrictions

1. Applicant's election with traverse of Group II, claim 7, in the reply filed on January 26, 2007 is acknowledged. The traversal is on the ground(s) that there is no distinction between pyrogenic silica and hydrophilic silicas which come freshly prepared direct from the burner. Pyrogenic silicas are prepared in a burner and are always hydrophilic. Thus, these "two types" of silicas which the Office alleges to be different, are in fact the same. Thus, there is no basis for any restriction. This is not found persuasive because silicas which come freshly prepared direct from the burner is different from pyrogenic silica which did not come freshly from the burner, but stored for some time and accumulated water. In any case, silica of claim 7 can be prepared from a particular type of silica not any metal oxide as claimed in claim 1.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-14 are pending in the application. Claims 1-6, and 8-14 are withdrawn from consideration as directed to a non-elected invention.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a carbon content of more than "0" and up to 20 wt %, does not reasonably provide enablement for "0" carbon content. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

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invention commensurate in scope with these claims. The specification as filed discloses that a silane for treating silica has **at least one hydrocarbon** radical (See page 2), i.e. a sililated silica should have more than "0".

4. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 7 recites a methanol number being of "less than 30", which includes "0", i.e. no silica is no longer even partly hydrophobic.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barthel et al (US 5686054).

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Barthel et al discloses highly apolar silica prepared by treating with a silylating agent such as silane having structure of claimed formula I (See column 4, line 25+) including **dimethyldichlorosilane** (See column 10, line 65) a **pyrogenic silica** having an average primary *particle size* of less than 100 nm, preferably having an average primary particle size of from 2 to 50 nm and more preferably having an average primary particle size of from 5 to 20 nm, in particular with a specific surface area of greater than 25 m²/g, preferably from 50 to 300 m²/g (measured by the BET method in accordance with DIN 66131 and 66132) (See column 8, lines 50-57). The silylating agent is added to 100 parts of silica in quantities of 2-100 parts by weight (See column 6, lines 43-45). The highly apolar silica has a carbon content of at least 1% by weight, preferably at least 1.5% by weight and more preferably at least 2.0% by weight (See column 8, lines 60-62). The silylating agent on the silica is firmly fixed chemically and completely and has no component which can be extracted from the silica or is soluble (See column 9, lines 2-5).

It is the Examiner's position that a process of Barthel is substantially identical to that of claimed invention because all process parameters are within claimed range: the specification as filed discloses that claimed partly hydrophobic silica is made by silylating a *pyrogenic* silica or freshly prepared hydrophilic silica (See spec., page 4, lines 19-20) having primary particle size of from 5 to 50 nm (See spec., page 3, lines 22-23) with a specific surface area of 200 m²/g with a silylating agent such as dimethyldichlorosilane in an amount of e.g. 2.86 parts per 100 parts of silica (See spec., page 19, Example 1). Therefore, highly apolar silica prepared by a process of Barthel has or would have claimed properties: a contact angle θ in air for water of less than 180°, the degree of coverage τ of the surface of the silica with silylating agent residues, based on the total silica particle surface area, being $1\% < \tau < 50\%$, the density of the surface silanol groups

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SiOH ranging between a minimum of 0.9 and a maximum of 1.7 SiOH/nm^{sup.2} particle surface area, and the particles having a carbon content of less than 0.1% by weight and up to 20% by weight, and a methanol number of less than 30.

If it could be argued that silylated silica of Barthel et al is different from claimed partly hydrophobic silica, it would be obvious to determine the optimum values of the relevant amount of silylating agent in the cited prior art through routine experimentation to achieve the desired degree of hydrophobicity (including those of claimed invention) since it is well known in the art that the degree of hydrophobicity depends on the amount of silanol groups left on the silica surface.

8. Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tojo et al (US 5278204).

Tojo et al disclose silane-treated silica by treating dry method silica (See column 5, line 4) with a silane having structure of claimed formula I including **dimethyldichlorosilane** (See column 4, line 51-68) having a specific surface area of greater than 25 m²/g, preferably from **50 to 400 m²/g** (See column 5, lines 7-8), a carbon content of 0.1% -5% by weight (See column 5, lines 16-20).

It is the Examiner's position that a carbon content of 0.1% -5% by weight implies that the degree of coverage τ of the surface of the silica having specific surface area within claimed range residues, within claimed range of $1\% < \tau < 50\%$. Therefore, the density of the surface silanol groups SiOH, a methanol number and a contact angle θ all three depending on the degree of coverage would be also within claimed range.

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If it could be argued that silylated silica of Tojo et al is different from claimed partly hydrophobic silica, it would be obvious to determine the optimum values of the relevant amount of silylating agent in the cited prior art through routine experimentation to achieve the desired degree of hydrophobicity (including those of claimed invention) since it is well known in the art that the degree of hydrophobicity depends on the amount of silanol groups left on the silica surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
E Tsoy

March 13, 2007